

A Methodology for Dynamically Adjusting A Transmission Line Rating on an Island Grid in the Caribbean

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Abstract: *Electricity transmission along overhead power lines has traditionally been limited by the transmission lines' thermal rating, defined in terms of a fixed static rating. Load growth and the rapid increase in distributed generation have forced network operators to challenge these static ratings as overly conservative and explore alternative methods of maximising transmission line capacity. This paper describes the development of an overhead dynamic line rating software. The developed software is then applied to the Trinidad and Tobago Electricity Commission (T&TEC) transmission network. Ampacity calculations are performed using the IEEE 738 standard and implemented in MATLAB with an accompanying GUI. Results indicate that the line usage efficiency of one circuit examined in T&TEC's transmission network can be increased, suggesting technical and financial benefits to further develop and expand this study.*

Keywords: Asset management, conductors, power transmission lines, power transmission meteorological factors, software